IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): An image processing apparatus operable to embed data into an image, said apparatus comprising:

a combining processor operable to form said data into a transform domain representation providing a plurality of sub-bands divided by spatial frequency components, said transform domain representation being the discrete wavelet transform, each of said sub-bands comprising wavelet coefficients and, in combination with a transform processor, to combine said data with said image in ~~one of:~~ a transform domain form, said transform processor generating a transform domain form of said image, said data being combined with said image by said combining processor in said transform domain, said transform processor generating a spatial domain representation of said combined image and data, [[or]] ~~a spatial domain form of said image, said transform processor generating a spatial domain representation of said transform domain representation of said data, said data being combined with said image by said combining processor in said spatial domain,~~ wherein said data is formed into said sub-bands representing said data in a scan direction, with an effect that said data is embedded in only a first low vertical, high horizontal spatial frequencies sub-band of the discrete wavelet transform, and only a second high vertical, low horizontal spatial frequencies sub-band of the discrete wavelet transform, said data being embedded into to said first and second sub-bands in a vertical scan direction and a horizontal scan direction respectively, symbols of said data being added to the wavelet coefficients, said scan direction being in the same direction in the sub-band as the direction of the low spatial frequencies of the image.

Claim 2 (Original): An image processing apparatus as claimed in Claim 1, wherein said direction of said low spatial frequencies of said at least one sub-band and said another direction of said high spatial frequencies in said at least one sub-band are orthogonal with respect to each other.

Claim 3 (Previously Presented): An image processing apparatus as claimed in Claim 1, comprising a modulator operable to modulate a Pseudo Random Symbol Stream with each symbol of the data to be embedded, wherein said combining processor is operable to introduce said modulated Pseudo Random Symbol Stream in said scan direction into said transform domain representation.

Claims 4 and 5 (Canceled).

Claim 6 (Currently Amended): An image processing apparatus as claimed in Claim 1 [[5]], wherein said data to be embedded in said image is distributed equally between said first and second sub-bands.

Claim 7 (Currently Amended): An image processing apparatus as claimed in Claim 1 [[4]], wherein said data to be embedded is a Universal Material Identifier (UMID).

Claim 8 (Original): An image processing apparatus as claimed in Claim 1, comprising an error correction encoder operable to encode said data to form said data to be embedded.

Claim 9 (Original): An image processing apparatus as claimed in Claim 1, wherein said transform processor is operable to transform said transform domain representation of

said data to be embedded into the spatial domain, said combining processor being operable to

receive said image in the spatial domain and to combine said image with said spatial domain

representation of said embedded data.

Claim 10 (Original): An image processing apparatus as claimed in Claim 1, wherein

said transform processor is operable to receive said image in the spatial domain and to

transform said image into the transform domain, and said combining processor is operable to

combine said transform domain image with the transform domain representation of said data

to be embedded, and said transform domain processor is operable to form an inverse

transform of said combined transform domain image and data into the spatial domain.

Claim 11 (Original): An image processing apparatus as claimed in Claim 1, wherein

said image is a video image.

Claim 12 (Currently Amended): A method of embedding data in an image, said

method comprising:

forming said data to be embedded into a transform domain representation

corresponding to a spatial domain form of said data, said transform domain representation

providing a plurality of sub-bands divided by spatial frequency components, said transform

domain representation being the discrete wavelet transform, each of said sub-bands

comprising wavelet coefficients; and

combining said data with said image by ~~either~~ generating a transform domain form of

said image, combining said data with said image in the transform domain, and generating a

spatial domain representation of said combined image and data, ~~or generating a spatial~~

~~domain representation of said transform domain representation of said data, and combining~~

~~said data with said image in said spatial domain,~~ wherein said forming said data into the

transform domain representation comprises:

forming said data into said sub-bands in a scan direction, with an effect that said data

is embedded in only a first low vertical, high horizontal spatial frequencies sub-band of the

discrete wavelet transform, and only a second high vertical, low horizontal spatial frequencies

sub-band of the discrete wavelet transform, said data being embedded into to said first and

second sub-bands in a vertical scan direction and a horizontal scan direction respectively,

symbols of said data being added to the wavelet coefficients, said scan direction being in the

same direction in the sub-band as the direction of the low spatial frequencies of the image.

Claim 13 (Canceled).

Claim 14 (Original): A computer program providing computer executable

instructions, which when loaded on to a data processor configures said data processor to

operate as an image processing apparatus as claimed in Claim 1.

Claim 15 (Original): A computer program having computer executable instructions,

which when loaded on to a data processor causes the data processor to perform the method

according to Claim 12.

Claim 16 (Currently Amended): A tangible ~~computer program product having a~~

computer readable medium having recorded thereon ~~information signals representative of~~ the

computer program claimed in Claim 14.

Claim 17 (Original): A computer program product having a computer readable medium having recorded thereon information signals representative of the computer program claimed in Claim 15.

Claim 18 (Currently Amended): An apparatus for embedding data in an image, said apparatus comprising:

means for forming said data to be embedded into a transform domain representation corresponding to a spatial domain form of said data, said transform domain representation providing a plurality of sub-bands divided by spatial frequency components, said transform domain representation being the discrete wavelet transform, each of said sub-bands comprising wavelet coefficients;

means for combining said data with said image by ~~either~~ generating a transform domain form of said image, combining said data with said image in the transform domain, and generating a spatial domain representation of said combined image and data, ~~or~~ ~~generating a spatial domain representation of said transform domain representation of said~~ ~~data, and combining said data with said image in said spatial domain,~~ wherein means for forming said data into the transform domain representation comprises:

means for forming said data into said sub-bands in a scan direction, with an effect that said data is embedded in only a first low vertical, high horizontal spatial frequencies sub-band of the discrete wavelet transform, and only a second high vertical, low horizontal spatial frequencies sub-band of the discrete wavelet transform, said data being embedded into said first and second sub-bands in a vertical scan direction and a horizontal scan direction respectively, symbols of said data being added to the wavelet coefficients, said scan direction being in the same direction in the sub-band as the direction of the low spatial frequencies of the image.

Claim 19 (New): An image processing apparatus operable to embed data into an image, said apparatus comprising:

a combining processor operable to form said data into a transform domain representation providing a plurality of sub-bands divided by spatial frequency components, said transform domain representation being the discrete wavelet transform, each of said sub-bands comprising wavelet coefficients and, in combination with a transform processor, to combine said data with said image in a spatial domain form of said image, said transform processor generating a spatial domain representation of said transform domain representation of said data, said data being combined with said image by said combining processor in said spatial domain, wherein said data is formed into said sub-bands representing said data in a scan direction, with an effect that said data is embedded in only a first low vertical, high horizontal spatial frequencies sub-band of the discrete wavelet transform, and only a second high vertical, low horizontal spatial frequencies sub-band of the discrete wavelet transform, said data being embedded into to said first and second sub-bands in a vertical scan direction and a horizontal scan direction respectively, symbols of said data being added to the wavelet coefficients, said scan direction being in the same direction in the sub-band as the direction of the low spatial frequencies of the image.

Claim 20 (New): An image processing apparatus as claimed in Claim 19, wherein said direction of said low spatial frequencies of said at least one sub-band and said another direction of said high spatial frequencies in said at least one sub-band are orthogonal with respect to each other.

Claim 21 (New): An image processing apparatus as claimed in Claim 19, comprising a modulator operable to modulate a Pseudo Random Symbol Stream with each symbol of the

data to be embedded, wherein said combining processor is operable to introduce said

modulated Pseudo Random Symbol Stream in said scan direction into said transform domain

representation.

Claim 22 (New): An image processing apparatus as claimed in Claim 19, wherein said

data to be embedded in said image is distributed equally between said first and second sub-

bands.

Claim 23 (New): An image processing apparatus as claimed in Claim 19, wherein said

data to be embedded is a Universal Material Identifier (UMID).

Claim 24 (New): An image processing apparatus as claimed in Claim 19, comprising

an error correction encoder operable to encode said data to form said data to be embedded.

Claim 25 (New): An image processing apparatus as claimed in Claim 19, wherein said

transform processor is operable to transform said transform domain representation of said

data to be embedded into the spatial domain, said combining processor being operable to

receive said image in the spatial domain and to combine said image with said spatial domain

representation of said embedded data.

Claim 26 (New): An image processing apparatus as claimed in Claim 19, wherein said

transform processor is operable to receive said image in the spatial domain and to transform

said image into the transform domain, and said combining processor is operable to combine

said transform domain image with the transform domain representation of said data to be

embedded, and said transform domain processor is operable to form an inverse transform of said combined transform domain image and data into the spatial domain.

Claim 27 (New): An image processing apparatus as claimed in Claim 19, wherein said image is a video image.

Claim 28 (New): A computer program providing computer executable instructions, which when loaded on to a data processor configures said data processor to operate as an image processing apparatus as claimed in Claim 19.

Claim 29 (New): A tangible computer readable medium having recorded thereon the computer program claimed in Claim 28.

Claim 30 (New): A method of embedding data in an image, said method comprising:

forming said data to be embedded into a transform domain representation corresponding to a spatial domain form of said data, said transform domain representation providing a plurality of sub-bands divided by spatial frequency components, said transform domain representation being the discrete wavelet transform, each of said sub-bands comprising wavelet coefficients; and

combining said data with said image by generating a spatial domain representation of said transform domain representation of said data, and combining said data with said image in said spatial domain, wherein said forming said data into the transform domain representation comprises:

forming said data into said sub-bands in a scan direction, with an effect that said data is embedded in only a first low vertical, high horizontal spatial frequencies sub-band of the

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discrete wavelet transform, and only a second high vertical, low horizontal spatial frequencies sub-band of the discrete wavelet transform, said data being embedded into to said first and second sub-bands in a vertical scan direction and a horizontal scan direction respectively, symbols of said data being added to the wavelet coefficients, said scan direction being in the same direction in the sub-band as the direction of the low spatial frequencies of the image.

Claim 31 (New): A computer program having computer executable instructions, which when loaded on to a data processor causes the data processor to perform the method according to Claim 30.

Claim 32 (New): A computer program product having a computer readable medium having recorded thereon information signals representative of the computer program claimed in Claim 31.

Claim 33 (New): An apparatus for embedding data in an image, said apparatus comprising:

means for forming said data to be embedded into a transform domain representation corresponding to a spatial domain form of said data, said transform domain representation providing a plurality of sub-bands divided by spatial frequency components, said transform domain representation being the discrete wavelet transform, each of said sub-bands comprising wavelet coefficients;

means for combining said data with said image by generating a spatial domain representation of said transform domain representation of said data, and combining said data with said image in said spatial domain, wherein means for forming said data into the transform domain representation comprises:

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means for forming said data into said sub-bands in a scan direction, with an effect that said data is embedded in only a first low vertical, high horizontal spatial frequencies sub-band of the discrete wavelet transform, and only a second high vertical, low horizontal spatial frequencies sub-band of the discrete wavelet transform, said data being embedded into said first and second sub-bands in a vertical scan direction and a horizontal scan direction respectively, symbols of said data being added to the wavelet coefficients, said scan direction being in the same direction in the sub-band as the direction of the low spatial frequencies of the image.